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Farm Cost

SITUATION

BUREAU OF AGRICULTURAL ECONOMICS
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GENERAL SITUATION

Farm cost rates have remained relatively high during 1949, and prices for most cost items probably will continue high in 1950. Farm cost rates moved up continuously from 1939 to 1948. The index of prices farmers paid for goods and services used in production reached an all time high in 1948. It was 201 (1935-39=100) compared with 184 in 1947 and 151 in 1946. But up to 1948 prices received for farm products increased at a more rapid rate than did cost rates. In 1948 the index (1935-39=100) of prices of farm products was 268 compared with 260 in 1947 and 218 in 1946.

During the first 9 months of 1949 the index of prices paid by farmers for goods and services used in production averaged 195 compared with 202 for the same period in 1948. The index of prices received for farm products, however, averaged 239 during the first 9 months of 1949 compared with 273 for the same period a year earlier. In other words, from 1948 to

Goods and services used in production: Prices paid by farmers and farm wage rates, United States

(Index numbers 1935-39=100)

Year	All commodities 1/	Farm machinery	Building material other than house	Equipment and supplies 2/	Feed	Fertilizer	Seed	Wage rates
1910	77	66	68	91	86	99	-	82
1911	81	66	70	90	99	99		83
1912	77	66	70	90	84	100	66	86
1913	80	66	68	90	99	102	63	88
1914	78	66	63	89	94	100	64	86
1915	82	68	69	95	93	112	77	87
1916	98	70	79	116	120	120	92	96
1917	119	80	93	141	170	137	96	119
1918	137	102	109	163	179	170	123	150
1919	151	105	128	162	195	182	181	175
1920	137	109	139	170	127	186	98	205
1921	111	105	105	137	90	156	86	131
1922	109	93	107	126	114	129	84	129
1923	111	97	109	123	124	126	92	144
1924	112	101	109	120	131	120	97	147
1925	116	101	111	126	131	129	111	149
1926	115	101	109	130	127	126	138	152
1927	113	101	108	127	128	121	127	152
1928	117	101	107	124	137	131	115	152
1929	116	100	107	123	134	130	119	153
1930	111	100	105	118	122	126	112	142
1931	97	99	94	104	86	115	98	110
1932	86	93	85	96	64	99	66	81
1933	85	91	87	93	71	96	61	72
1934	97	95	99	98	98	104	90	81
1935	100	96	97	97	105	102	99	88
1936	98	98	98	99	104	96	91	94
1937	107	101	105	102	121	102	124	107
1938	99	104	100	103	85	100	102	106
1939	96	101	100	99	85	100	84	105
1940	98	100	101	99	94	97	84	107
1941	103	103	109	104	101	100	80	131
1942	117	108	120	114	125	111	123	171
1943	128	111	128	121	150	120	156	224
1944	136	114	138	126	165	121	175	268
1945	137	116	141	128	163	121	181	297
1946	151	120	158	132	194	124	190	321
1947	184	137	222	150	235	138	230	346
1948	201	160	237	168	246	152	224	367
Jan.	204	-	-	-	291	-	-	360
Feb.	201	-	-	-	264	-	219	-
Mar.	201	148	235	163	267	-	221	-
Apr.	203	-	-	-	271	150	220	357
May	204	-	-	-	269	-	219	-
June	204	159	237	168	266	-	-	-
July	203	-	-	-	254	-	-	366
Aug.	200	-	-	-	231	-	-	-
Sept.	199	164	239	170	220	155	230	-
Oct.	196	-	-	-	205	-	236	363
Nov.	196	-	-	-	202	-	-	-
Dec.	197	168	236	172	206	-	-	-
1949								
Jan.	197	-	-	-	206	-	-	372
Feb.	196	-	-	-	196	-	261	-
Mar.	196	172	230	173	198	-	257	-
Apr.	197	-	-	-	203	158	257	353
May	197	-	-	-	200	-	257	-
June	195	179	224	174	191	-	-	-
July	194	-	-	-	193	-	-	361
Aug.	194	-	-	-	192	-	-	-
Sept.	193	-	-	-	187	156	254	-

1/ Excluding wages.

2/ Based on prices paid by farmers for 16 items including binder twine, lead arsenate, milk pails, pitchforks, gasoline for autos and trucks, motor oil and tires, and other similar items used on farms for production.

Note: For a list of items included in this table see "Agricultural Prices" Bureau of Agricultural Economics, April 29, 1946.

1949 the index of prices of farm products declined 34 points compared with a decline of only 7 points for cost rates. Further declines are expected in 1950, with prices received declining again somewhat more than those paid.

Prices of farm machinery, seed, and equipment and supplies continued to rise during 1949. Prices of fertilizer averaged higher in 1949 than in 1948, but farm wage rates and prices paid for building materials, and feed declined. The index of prices of crops and of livestock and livestock products both declined and in about the same proportion. Lower prices for roughages and grains mean lower gross returns to the farmer who sells these crops, but lower cash costs to the farmer who must buy.

Lower prices of farm products and comparatively high cost rates with resulting high operating costs in 1949 are definitely lowering farmers' net returns. For the country as a whole, however, operators' net returns are expected to average around 3 times the prewar. The extent of the decline will depend much upon the type of farm and the area. Some dairy farmers in the Northeast are faced with high feed costs because of the drought this summer. It is estimated that in 1949 net cash returns on commercial family-operated dairy farms in this area will average about \$700 less than in 1948. Gross cash receipts will be down nearly \$1,000 mostly because of a lower price for milk. Cash expenditures in 1949 will be slightly lower than in 1948. Crop farmers, particularly grain farmers, will have lower net returns because of lower crop yields and grain prices and continued high costs of operation, maintenance and depreciation. Net farm returns on commercial family-operated winter wheat farms will be around \$2500 less in 1949 than in 1948. The 1949 estimated returns on both dairy and winter wheat farms, however, will be considerably higher than prewar returns.

Farm wage rates are averaging slightly less in 1949 than a year ago. This is the first decline in average wage rates since the big increases in the war and postwar years. The strongest tendency toward leveling off of farm wage rates has been in the Pacific Coast region and in the important industrial regions. With the leveling off of industrial employment, the supply of workers available in 1950 is expected to be slightly greater and wage rates slightly lower than in 1949.

Prices of farm machinery in 1949 were the highest on record. Plant capacity of the American farm machinery industry is now larger than ever before and dealers' stocks on January 1, 1950 of both new and used farm machines will be larger than for any year since 1941. The end of the sellers' market seems to have been reached and dealers are offering relatively better prices for "trade ins" than they have in recent years.

Total costs of using mechanical power and equipment on farms are higher than ever before. Fuels, particularly gasoline, the leading tractor fuel, are higher than before and costs of repairs and replacement also have reached new high levels.

The total feed supply (concentrates and hay excluding pasture) for the 1949-50 season is the largest on record; 1/6 larger than the 10-year average (1939-48). The supply of feed grains is mainly responsible for the record high total because hay and other concentrates are about the same as a year earlier. The supply of all feed concentrates for the season 1949-50 totaled 180 million tons compared with 169 million tons a year ago.

The number of grain consuming livestock to be fed this season is expected to be 2 or 3 percent larger than the 161 million animal units fed in 1948-49. The index of feed concentrates supply per animal unit is nearly a third higher than in 1935-39, and the highest on record. The index of

livestock and livestock product prices has come down about 20 percent from a high point reached in August a year ago, but feed costs have declined even more. It should pay to feed livestock heavily this fall and winter.

The present cost of many important field seeds is higher than a year ago and much higher than the 1943-47 average. Supplies of grass seeds are particularly short this year and prices next spring are expected to be higher than a year ago. Clover or alfalfa mixed hay has considerably more feed value per ton and per acre than grass hay and is well worth the additional cost of seed where soil and climate are suitable for its production.

The price of fertilizer has risen less rapidly than most cost items but has continued to increase year after year since 1940. In 1949 it averaged about 4 percent higher than in 1948. The September price was slightly lower than in April, and not much change is expected in prices paid by farmers in 1950. There have been reductions recently in wholesale prices of some nitrogen materials, but prices of potash and phosphates are about unchanged. Supplies of all fertilizer materials probably will be larger in 1950. The industry has capacity to supply 15 to 25 percent more nitrogen, 10 to 15 percent more phosphate and about 10 percent more potash. Except for some local tight spots, supplies will be adequate to meet expected demands except possibly for potash and perhaps some special mixes. Even so, farmers will profit from continued or expanded use of fertilizer.

Prices of most items of building materials, supplies and containers in 1949 have remained near 1948 levels with slight reductions in a few items. The price of cement is between 4 and 5 percent higher than a year ago, but prices of lumber are down. At the wholesale level, the price of lumber was down about 11 percent from a year ago. Stocks of most items in

TOTAL PRODUCTION AND COST PER UNIT OF PRODUCTION, FAMILY OPERATED FARMS, BY TYPE, 1930-48

INDEX NUMBERS (1930-44 = 100)



hands of dealers have improved and are generally adequate. Indications are that supplies of most items will continue to increase from present levels.

Prices of insecticides and fungicides in 1950 will be about the same as at present. Supplies of these materials are expected to be ample in 1950 to meet normal requirements. However, several localized pest outbreaks appeared in local areas in 1949 and demands for insecticides were considerably above average. Such local shortages may occur again in 1950. Farmers and local dealers, therefore, should make their requirements known to their suppliers as far in advance as possible.

Land values and gross rentals in 1949 declined for the first time in more than a decade, led by greater declines in prices of farm products and in net incomes. Nevertheless, returns to land remained at relatively high levels in 1949. The average rate earned on farm real estate investments in 1949 was considerably higher than the interest rate on farm mortgages and more than could be made on most alternative investments. While farm returns continue high, substantial payments on principal are advisable in order to be in the best possible position if refinancing becomes necessary.

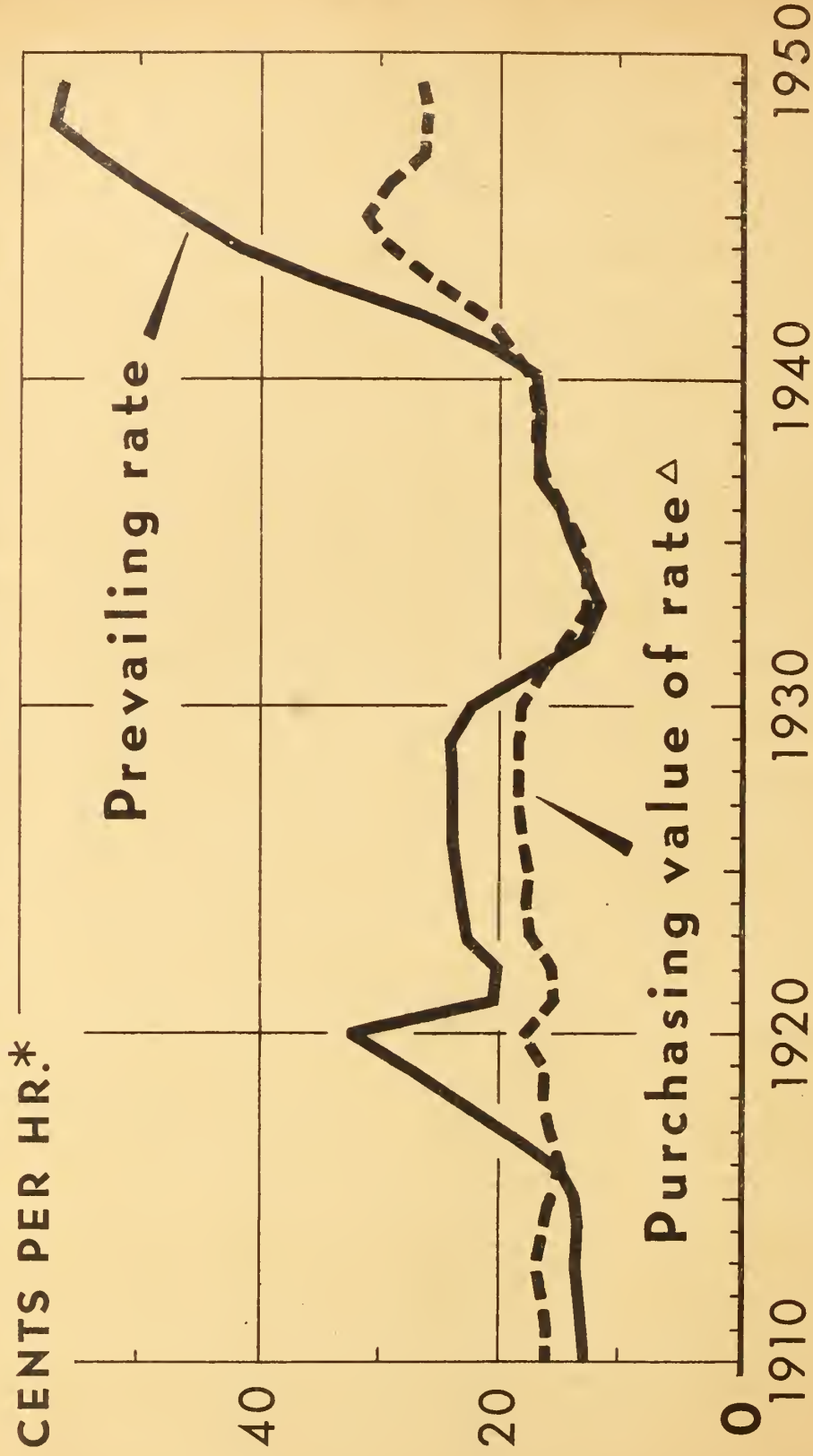
Farm Labor

Farm wage rates in 1949 are averaging slightly less than last year. This is the first drop in average rates after the great increase of the war and postwar periods. The reduction in wage rates has been greatest in the Pacific Coast region. The reduction from last year's level also has been more marked in regions where industrial production is important than in the more strictly agricultural regions.

An additional decrease in average farm wage rates can be expected in 1950 if the expected decline in farm income materializes. The decrease from 1949 to 1950 probably will exceed the indicated two percent drop from 1948 to 1949 (table 1).

The supply of farm workers in 1949 has been adequate generally to do farm jobs well and on time. An adequate supply is expected to continue

CASH FARM WAGE RATES



* HOURLY EQUIVALENT OF ALL TYPES OF FARM WAGE RATES
 Δ IN TERMS OF 1935-39 RURAL LIVING COSTS

during the remainder of the year. Some farmers in the western part of the Cotton Belt where another bumper cotton crop is being gathered may encounter difficulty in obtaining all the experienced cotton pickers they would like to have at the height of the picking season. Mexican Nationals are being imported to help out, and mechanical strippers and pickers are used more in these areas than elsewhere.

Table 1.- Farm wage rates and related data, United States
1935-39 average and 1940-49 inclusive
(Index numbers 1935-39=100)

Period or year	Farm employment			Gross farm production 2/		Farm wage rates	Ratio of farm wage rates to	
	Total	Family	Hired	Total	Per worker		Pro- duction:	Gross farm income
	1/	1/			3/		per worker	per worker 4/
1935-39	100	100	100	100	100	100	100	100
1940	97	96	100	108	111	107	96	98
1941	95	94	99	111	117	131	112	94
1942	95	94	99	123	129	171	133	91
1943	94	94	94	120	128	224	175	95
1944	92	93	87	124	135	268	199	106
1945	90	92	82	123	137	298	218	110
1946	92	94	84	126	137	321	234	106
1947	93	95	87	121	130	347	267	97
1948 5/	92	93	89	131	142	367	258	100
1949 5/	89	90	87	127	143	361	252	105

1/ Includes farm operators and members of their families working without wages.

2/ Includes value of farm-produced power of horses and mules.

3/ Based on total farm employment and total gross production.

4/ Because of the increase in volume of production and the increase in the price of farm products, the gross farm income per worker has increased at about the same rate as have farm wage rates from the prewar years of 1935-39 to 1949.

5/ Preliminary.

The 1949 production of certain other fall harvested crops is expected to exceed that of last year. There are, for example, over 40 million more bushels of apples and over 440 thousand more tons of sugar beets. No serious shortage of workers to harvest these crops is expected to develop despite larger production. The production of some other crops, such as potatoes in northern areas, probably will be lower than last year, but the supply of harvest labor is expected to be ample.

With the leveling off of industrial employment, the supply of workers available for both seasonal and year-round farm jobs in 1950 is expected to be slightly greater than for this year. With about normal weather and crops, however, the average number of workers employed on farms is expected to

continue the slight downward movement of the last two years. Most of the reduction is expected to occur in family workers with little change in the average number of hired workers.

Farm Power and Machinery

Retail prices of farm machinery in 1949 were the highest on record. Higher prices along with reduced farm incomes this year have resulted in a decline in the volume of farm machinery purchases from the record level of 1948.

Farm income in 1950 is expected to decline again and purchases of farm machinery probably will be somewhat below 1949. Purchases in 1950, however, may still be larger than for any year prior to 1947. Although prices of new machinery in the first half of 1949 were the highest on record, some prices have come down during the last few months. Also with the end of the sellers' market, dealers will tend to offer relatively better prices for "trade ins" than in recent years.

Practically all items of farm machinery were in sufficient supply in 1949, and adequate supplies are in prospect for 1950. Production of farm machinery in 1949 is expected to be somewhat below the record output of 1948. Production of many items has exceeded sales to farmers, and dealers' stocks on January 1, 1950 of both new and used farm machines will be larger than for any year since 1941. Plant capacity of the American farm machinery industry is now larger than ever before.

Exports of farm machinery in 1949 probably will be about the same as in 1948. Exports were larger in the first half of 1949 than for the same months of 1948 but have declined since; reflecting dollar shortages and increased supplies of foreign produced machines.

Numbers of tractors and the total volume of other machinery now on farms are larger than ever before. There were 3.5 million tractors of all types on farms January 1, 1949. Additional purchases during the year have increased this number. For many important machines, such as corn pickers, windrow-pickup balers, combines and forage harvesters the percentage increase in numbers on farms has been even larger in recent years than for tractors. About half of all farms now have tractors but more important, these tractor farms have about 85 percent of the harvested cropland. Also, some farms without tractors hire or obtain by other means the use of tractor power.

Total numbers of horses and mules on farms January 1, 1950 will be less than half the average number on farms during the prewar period 1935-39. Prices paid for horses and mules are now the lowest in years and the low prices are being reflected in smaller colt crops. The colt crop of 1949 probably will be even smaller than the 1948 colt crop of 200,000 head, which was the smallest in more than a century. Cost of keeping workstock in 1949 was lower than in 1947 or 1948, but higher than for any other recent year (table 2).

Table 2.- Horses and mules and tractors on farms and cost of keeping horses and mules and of using farm tractors, United States, 1940-49 1/

(Index numbers 1935-39=100)

Calendar year or period	Horses and mules on		Colts under 1 year on		Horses and mules all ages, value		Feed cost per head		Tractors on farms, number		Prices paid by farmers for:		
	farms, number		farms, number		per head		per head		January 1		New tractors		
	Percent	Number	Percent	Number	Percent	Value	Percent	Value	Percent	Number	Percent	Gasoline	Tires
1940	92	101	90	94	124	94	94	91	95	91	91	91	91
1941	90	98	81	104	135	99	99	94	99	94	94	94	94
1942	87	85	78	132	152	104	104	103	103	103	103	103	103
1943	84	69	95	174	169	104	104	104	104	104	104	104	104
1944	80	62	98	196	178	107	107	104	104	104	104	104	104
1945	76	54	86	192	195	109	109	103	103	103	103	103	103
1946	70	41	80	221	208	122	122	106	106	106	106	106	106
1947	64	35	84	283	225	136	136	118	118	118	118	118	118
1948	58	31	79	297	253	152	152	132	132	132	132	132	132
1949	53	27	72	4/235	5/281	6/166	7/134	7/125	7/125	7/125	7/125	7/125	7/125

1/ The 1935-39 averages were horses and mules all ages, 15,750,000 head; value per head, \$97.68; feed cost per head, \$39.34; colts under one year of age 744,000 head; tractors, 1,244,000; prices paid by farmers for new tractors, \$1,106; gasoline \$0.19; and tires, \$12.70. 2/ Based on 25 bushels each of oats and corn and 2 tons of loose hay. 3/ Tractor prices are for medium size (20-29 BHP) wheel tractor equipped with rubber tires. 4/ Average of the first eight months. 5/ Preliminary estimates. 6/ Average prices paid in March.

7/ Average prices paid in March and June.

Numbers of motor trucks and automobiles on farms January 1, 1949 were at peak levels. Supplies of new motor trucks and automobiles were large in 1949 and numbers of automobiles and motor trucks on farms on January 1, 1950 will show a substantial increase over the numbers in 1949. The number of motor trucks on farms has doubled during the past 10 years. During the past 5 years automobiles on farms increased about 25 percent.

Cost of using tractor power in 1949 was higher than for any previous year largely because of higher prices of new tractors and of gasoline; the leading tractor fuel. On the other hand, tire prices in 1949 were the lowest since 1942.

Feed

The total supply of feed (concentrates and hay excluding pasture) for the 1949-50 season is the largest on record--12½ percent larger than the 1939-48 average. The supply of feed concentrates for the 1949-50 season is also the largest on record, totaling about 180 million tons compared with 169 million tons a year ago. The carryover of old grain is much larger than a year ago, but the 1949 production of feed grain is somewhat smaller. Supplies of high protein feeds per animal unit may be a little smaller than a year ago, but still larger than for most recent years. The supply of mill feeds probably will be considerably smaller than in recent years. The quantity of wheat fed in 1949-50 is expected to be about the same as in 1948-49, and much smaller than in some war years.

The number of grain consuming animal units to be fed in 1949-50 is expected to be 3 or 4 percent larger than the 161 million animal units fed in 1948-49. The index of supply of feed concentrates available for feed in 1949-50 is 51 percent above the 1935-39 period whereas the number of grain consuming animal units to be fed is only 16 percent greater than during 1935-39. 1/ As a result, the index of supply per animal unit is 30 percent higher than in 1935-39, and the highest on record (table 3).

The supply of hay per animal unit is high for the country as a whole although there are prospective shortages in parts of the Northeast and in the Dakotas and Montana due to droughts in those areas.

The average price of corn on September 15 was \$1.16 per bushel compared with \$1.78 a year earlier. Prices of commercial mixed feeds and nearly all byproduct feeds except soybean meal and the animal protein feeds were lower September 1949 than a year ago, but not down as much as corn. Feed prices may decline somewhat further but the loan and price support programs will tend to limit the extent of declines.

Livestock-feed price ratios on September 15, 1949 were above the 20-year September average for hogs, eggs, turkeys and milk, but below average for chickens and butterfat. The ratios for hogs and eggs were especially favorable for feeding. The index of livestock and livestock product prices has come down about 17 percent from the high point reached a year ago but feed costs have declined even more (table 4). Thus, the ratio is very favorable for converting feed into livestock products and it is expected to

1/ Feeding years beginning October 1.

Table 3.- Relation of supply of concentrates available for feed
to number of livestock 1926-49
(Index numbers 1935-36 to 1939-40 = 100)

Feeding year	: Supply of feed : : concentrates : : available for : : feed : : 1/ : : <u>Percent</u>	: Animal units of : : grain consuming : : livestock fed : : in year : : 2/ : : <u>Percent</u>	: Supply of feed : : per animal : : unit : : 3/ : : <u>Percent</u>
1926-27	: 105	106	: 99
1927-28	: 103	107	: 96
1928-29	: 106	106	: 100
1929-30	: 103	107	: 96
1930-31	: 96	106	: 91
1931-32	: 106	109	: 97
1932-33	: 119	111	: 107
1933-34	: 98	107	: 92
1934-35	: 68	91	: 75
1935-36	: 97	96	: 101
1936-37	: 74	96	: 77
1937-38	: 101	95	: 106
1938-39	: 111	104	: 107
1939-40	: 116	109	: 106
1940-41	: 120	109	: 110
1941-42	: 128	117	: 109
1942-43	: 148	134	: 110
1943-44	: 141	135	: 104
1944-45	: 132	121	: 109
1945-46	: 131	117	: 112
1946-47	: 130	113	: 115
1947-48	: 111	108	: 103
1948-49	: 140	112	: 125
1949-50 4/	: 151	116	: 130

1/ Supply of concentrates year beginning October less quantity used for industry, food, seed, and exports.

2/ Animal units fed in year beginning October.

3/ Column 1 divided by column 2.

4/ Tentative estimate.

Table 4.--Prices of livestock and feed, 1927-49
(Index numbers 1935-39 = 100)

Year		Livestock and livestock product prices 1/ Percent	Feed grains and hay prices 1/ Percent	Ratio of livestock prices to feed prices Percent
1927	:	127	121	105
1928	:	136	130	105
1929	:	138	126	110
1930	:	117	113	104
1931	:	85	78	109
1932	:	63	51	124
1933	:	62	60	103
1934	:	72	100	72
1935	:	98	113	87
1936	:	103	107	96
1937	:	109	132	83
1938	:	97	75	129
1939	:	93	73	127
1940	:	96	86	112
1941	:	120	94	123
1942	:	148	117	126
1943	:	172	155	111
1944	:	166	175	95
1945	:	174	170	102
1946	:	206	206	100
1947	:	251	260	97
1948	: Aug.	294	248	119
	: Sept.	294	235	125
	: Octo.	277	203	136
	: Nov.	268	191	140
	: Dec.	262	194	135
1948	:	274	263	104
1949	: Jan.	253	197	128
	: Feb.	240	182	132
	: Mar.	246	188	131
	: Apr.	242	188	129
	: May	238	184	129
	: June	238	177	134
	: July	236	180	131
	: Aug.	237	175	135
	: Sept.	244	176	139

1/ Calendar year. The factors for converting index numbers from August 1909-July 1914 = 100 to 1935-39 = 100 are; livestock and livestock products, 116.6; feed grains and hay, 94.8.

continue favorable even though some livestock prices may decline in the next several months. It should pay to feed livestock heavily this fall and winter.

Dairy cows have been fed a heavy grain ration during the past year and it seems likely that it will pay to continue this practice. At present prices 80 pounds of milk will pay for 100 pounds of average concentrate ration for dairy cows. This is an average figure for the United States. With this feed milk price relation it pays to feed 1 pound of grain to each $2\frac{1}{4}$ to $3\frac{1}{2}$ pounds of milk depending on the amount of hay available and the kind of cows. There are many areas where the feed-milk price relation is favorable for even heavier feeding. It is advantageous to feed up to the level where the additional milk will just pay for the additional feed used. 2/ In areas where hay supplies are below normal heavier grain feeding will help maintain or increase milk production.

In some of the western Corn Belt States the price of corn is at or near \$1.00 per bushel. If it is assumed that a farmer has hogs weighing 225 pounds in December that will sell for \$17 per 100 pounds and that the price of corn is \$1.00 per bushel, it will take about 4.6 bushels of corn to carry one of these hogs another month and put on 50 pounds of gain. But will it pay to carry the hog to January if the 275 pound hog will sell for \$1.00 less or \$16 per hundred pounds?

Value of 275 pound hog at	\$16.00	\$44.00
Value of 225 " " at	\$17.00	38.25
Margin for carrying from Dec. to Jan.		5.75

Feed cost 4.6 bushels of corn @ \$1.00 = \$4.60

$\$5.75 \div \$4.60 = \$1.25$ return per \$1.00 of feed cost.

With these assumed prices it will pay because 25 cents will cover other costs. A decline in price of \$1.00 per hundred pounds or 6 percent from December to January is more than usually occurs. Feeding hogs to rather heavy weights probably will pay again this winter. However, it will pay to keep closely in touch with market conditions because they can change quickly, particularly with a larger hog crop coming to market.

Cattle being fattened for slaughter will be fed heavily this winter. Laying flocks also will continue to be fed a heavy grain ration. Even with heavy grain feeding for all kinds of livestock during the 1949-50 feeding year the carryover of grain at the end of the year will exceed the large carryover of grain at the end of 1948-49 year by a wide margin.

For several months prices of animal protein feeds have been much higher than normal relative to the price of corn. In times like this substitutions in feeds can be made profitably. Soybean meal, for example, can be substituted to a considerable extent for animal protein feeds for hogs and poultry. The use of cottonseed and linseed meal for livestock to which

2/ Jennings, Ralph D., and Klein, John W. More Grain for Your Dairy Cows. Vol. 33, No. 2, 1949. Agricultural Situation.

they are suited will tend to keep feed costs down. The place of good legume hay and pastures and grass silage in supplying as much of the protein as possible in livestock rations will increase in importance as a means of keeping cost of protein supplements to a minimum.

One feed that is unusually low in price compared with corn is molasses; especially when it can be handled in car lots. On the average about 8 gallons of molasses sells (in car lots) for about the same as 1 bushel of corn but in recent months 16 or 17 gallons could be bought for the price of a bushel of corn. Feeding tests with different kinds of livestock show a pound of molasses to be worth $\frac{1}{2}$ to $\frac{3}{4}$ as much as a pound of corn. It is worth even more where used to induce cattle, sheep or horses to eat low grade roughage that they otherwise would not eat. A gallon of molasses weighs about 12 pounds. Thus assuming that it is worth $\frac{1}{2}$ as much as corn, a gallon of molasses would be worth about 10 cents with corn at \$1.00 per bushel.

Seeds

The present cost of many important field seeds is higher than a year ago and much higher than the 1943-47 average. In some instances it is higher than ever before. Grass seeds in shortest supply are especially high in price. For example, prices that farmers paid for timothy and redtop during the four months from February to May 1949 averaged two and one-half times as high as in the corresponding period of 1948.

Grass seeds are expected to cost even more next spring. Prices paid to timothy-seed growers on August 15 this year were the highest on record for that date and more than twice as high as in 1948.

Although it is still too early to know what the supplies of alfalfa seed will be for seeding in 1950, it is probable that the spread between prices of grass and legume seeds will be proportionately less than usual. There will be a strong tendency among farmers to conserve on the use of grass seeds next spring. Many farmers who have not grown legumes for hay in the past because of the higher cost of seed may use more legume seed and less grass seed next year. Others will reseed fewer acres for hay while still others will sow less seed per acre.

Field surveys indicate that many farmers normally use more seed per acre than is usually recommended. Many use 50 percent more timothy seed (now high in price) per acre than is usually recommended. When the supply of seed was abundant and the price low, this practice was not so costly. About 10 pounds of timothy seed per acre is usually considered adequate when seeded alone in the spring and five pounds when seeded alone in the fall. On many farms, red clover, alsike clover or alfalfa seed may be substituted for some or all of this timothy seed. Clover or alfalfa mixed hay has considerably more feed value per ton and per acre than grass hay and is well worth the additional cost of seed where soil and climatic conditions are suitable for its production.

Supplies of important winter cover crop seeds (Austrian winter peas, vetches, ryegrasses, crimson clover and lupine) are slightly larger than last year but 22 percent below the 1943-47 average. The increase over last year in total supply is due mainly to greatly increased supplies of lupine and crimson clover. These increases, however, are partly offset by considerably reduced supplies of vetches. Austrian winter peas are a little more plentiful than last year but the supply is only about half the 1943-47 average.

Unfavorable weather in seed producing areas together with smaller carryovers of several important seeds account largely for present short supplies. In some areas, winter killing was a major factor. In others, wet weather at harvest time reduced yields while in other parts of the country where grass seeds are normally produced, shortages of hay and pasture resulting from dry weather caused crops originally intended for seed to be used for pasture or hay.

Prices offered to grass-seed growers at harvest time were generally attractive. These favorable prices resulted in many low-yielding acreages being harvested for seed that otherwise would not have been harvested.

Fertilizer

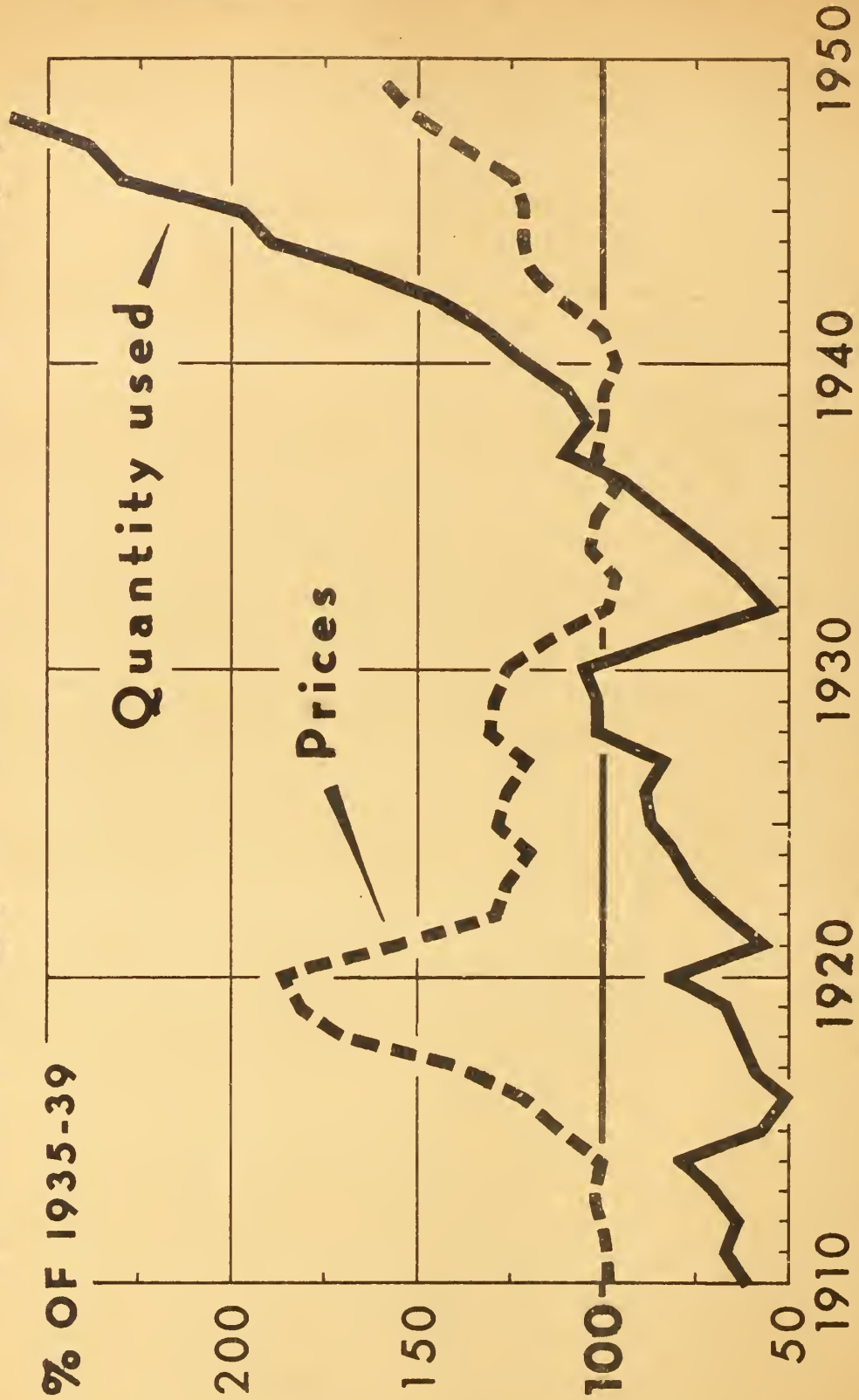
Fertilizer prices in 1950 probably will be near present levels. Farmers paid about 4 percent more in 1949 than in 1948; 10 percent more in 1948 than in 1947 and 11 percent more in 1947 than in 1946. For the past several years use of fertilizer in terms of plant nutrients has increased on an average of about 10 percent per year, with considerable variation from year to year depending on availability. Quantities of fertilizer used in 1949 were the highest on record, and the fertilizer industry has capacity to produce even larger amounts. Capacity within the industry could produce 15 to 25 percent more nitrogen, 10 to 15 percent more phosphates and about 10 percent more potash for use in 1950 than was used in 1949. Despite this, some tight spots may show up with respect to availability of potash and some specific mixtures.

Even though prices of many farm products are declining, more fertilizer can be used profitably in many areas on crops that heretofore have not received much fertilizer, such as feed crops and pastures. This is particularly true if residual effects of fertilizer are taken into account.

Close attention to yield response to different rates of fertilizer application, the value of the additional product obtained from the use of the fertilizer and the cost of the fertilizer are important factors to consider in determining the most profitable level of expenditure for fertilizer in the year ahead. There are many acres of land on which fertilizer use is far below quantities that would pay. The amount of fertilizer that can be used profitably differs from farm to farm.

In calculating costs and returns from use of fertilizer, account must be taken of (1) cost of the fertilizer applied, (2) cost of application, (3) cost of harvesting the additional yield obtained from the application of

FERTILIZER PRICES AND USE



CONSUMPTION DATA FROM PISAE, PRICE DATA FROM BAE

fertilizer, (4) additional returns from the crop on which the fertilizer was applied, and (5) additional returns from subsequent crops grown on the land on which the fertilizer was applied. This is particularly true with regard to phosphate fertilizers which often have an important residual effect on crop yields. It is less true of nitrogen, the direct effect of which is obtained mostly in the season of application. For an illustration of results from different applications of fertilizer in crop rotations, see the example at the end of this report.

Building Materials, Supplies and Containers

Prices of many of these materials have remained near 1948 levels, although there have been price reductions for a few items. Supplies have continued to improve and in 1949 generally have been ample. This trend is expected to continue into 1950.

Lumber production for 1949 is estimated to be down about 10 percent from the 1948 output. However, gross stocks apparently are increasing and indicate lower consumption relative to the production rate. Between July 1, 1948 and July 1, 1949 estimated retail stocks increased about 2 percent and stocks at other points in trade channels increased somewhat more. At the same time, the wholesale lumber price index for 1949 is down about 11 percent from the 1948 level. Retail price declines have not been so great, but have been largest for sheathing and other framing lumber; the grades primarily used on farms.

Shipments of steel mill products have continued to increase in 1949 despite substantial decreases in total tonnage of steel produced. The total available supply of steel products such as wire fencing, nails, staples, galvanized sheet iron, and pipe increased substantially during the first half of 1949 as compared with 1948. Galvanized sheet is still under rigid export controls, and together with certain kinds of pipe, remain in rather short supply. But there are indications that even for these items all essential agricultural needs will be met in 1950.

Decrease in wire bale-tie production apparently reflects lack of demand, possibly some shift to twine. Raw steel prices have changed little. A few retailers of steel products have had to reduce prices to keep inventories moving. During the past few years wide use has been made of aluminum products in farm building. Demands for these materials appear to have eased off slightly. Aluminum production is down probably in response to lower demands at present prices.

The price of cement is about 5 percent higher than in 1948. Production during the first six months of 1949 was about 5 percent higher than during the same period in 1948. Shipments have dropped about 3 percent, but stocks on hand July 1, 1949 have increased about 90 percent from a year earlier. They have almost doubled within the year. There should be no difficulty getting all the cement needed for farm use. Continuing increase of dealer inventories may force some price declines.

Packages and containers of all kinds are expected to be readily available at gradually reduced prices. This includes wooden boxes, baskets, paper cartons and bags, fibre bags, tin and glass containers, etc. The industry anticipates its first "normal" year in a decade. That means supplies probably will be adequate to meet demands. Some wartime expanded capacity is still available and expected demands are somewhat lower so prices are expected to be slightly lower. Despite expansion in its use, indications are that supplies of baler twine will be quite adequate in 1950.

Insecticides and Fungicides

No shortage is expected in materials needed to protect next year's crops from insects and plant diseases. Materials and facilities needed to manufacture insecticides and fungicides are generally available. Supplies of insecticides containing rotenone and pyrethrum will be adequate unless pests for which these materials are used occur in more than average abundance. Otherwise, it now appears that any shortages of insecticides and fungicides will be those which may occur locally because of failure to anticipate the needs.

During the 1949 season several important insect pests were unusually abundant over wide areas, and the demand for insecticides was considerably above average. Despite efforts to provide insecticides to meet demands, there were local shortages. The shortages were largely of the newer insecticides and occurred mostly because farmers and local dealers underestimated their needs and also delayed ordering. Newer insecticides require blending of several ingredients and cannot be manufactured and distributed as rapidly as the older standard materials, such as lead and calcium arsenate. It is important, therefore, that farmers and local dealers determine as promptly as possible the kinds and quantities of insecticides that they need and place appropriate orders with their suppliers.

Prices of insecticides and fungicides in 1950 will be about the same as they were during the latter part of 1949.

Farm Land Values and Rentals

Land values appear to have turned the peak in most parts of the country. The national index reached its highest level in November 1948 when land values were 77 percent above the 1912-14 average and 113 percent above 1935-39. By March 1949, values had turned downward in most of the Mountain and Pacific Coast States and in several scattered States elsewhere. The national index for March was 1 percent below the November level, the first decline in 10 years. In those States where values continued to increase, the gains were generally smaller than had occurred during a comparable period in previous years (table 5).

Values continued to decline in all but 11 States during the 4 months ending July 1, 1949. The national index for July 1949 was 172 (1912-14=100) --2 percent below March 1949, 3 percent below November 1948 and 1 percent below a year earlier. In about one-fourth of the States, the July index

dropped for the second consecutive period. Values in Montana were down 12 percent from the November peak, while values in Oregon and Wyoming declined 10 and 9 percent, respectively. In 3 other States--Washington, Colorado and Texas--values have dropped 8 percent. Values continued firm to slightly higher in Minnesota, Iowa, Illinois, New York, New Jersey, Delaware and Maryland.

Financing of farm purchases has not been a problem in most areas. Although some lenders have become less willing to finance buyers with small down payments, most buyers have been able to obtain adequate financing. Interest rates have increased slightly. The bulk of the new mortgage credit has been obtained from individuals and commercial banks but many of these mortgages have been for short periods. Buyers who do not make substantial payments on the principal while farm income continues high may find it difficult to obtain refinancing.

The declines in the prices of farm products since mid-1948, and the prospect of lower net farm income for 1949 have contributed to a substantial decline in the number of farm sales during the past year. About 17 percent fewer farms were sold during the year ending March 1949 than during the previous year. Recent trends in agricultural prices and industrial activity have caused some prospective buyers to delay their purchases, and others have reduced their offers below current asking prices. In the better farming areas, however, present owners have been reluctant to sell at prices offered because farm land continues to yield near-record returns.

Table 5.- Farm real estate ^{1/}: Index numbers of average value per acre and percentage change, by geographic divisions

Geographic divisions	Index numbers (1912-14=100)			Change during year ending		Change during 4 months ending	
	1920	March 1948	July 1949	July 1948	July 1949	March 1949	July 1949
				Percent	Percent	Percent	Percent
New England	140	166	161	5	0	0	-3
Middle Atlantic	136	162	161	6	5	3	-1
E. North Central	161	168	164	9	-1	1	-2
W. North Central	184	142	141	12	2	1	-1
South Atlantic	193	236	229	6	0	2	-3
E. South Central	199	273	267	7	3	4	-2
W. South Central	177	197	193	10	-3	-4	-2
Mountain	151	163	161	8	-2	-5	-1
Pacific	156	196	195	-4	-6	-6	-1
United States	170	175	172	7	-1	-1	-2

^{1/} Farm land with improvements as of March 1, except where otherwise indicated.

Gross rental income in 1948 was only about 3 percent less than the 1947 peak. Higher costs, especially for taxes and building maintenance, however, reduced net rents about 10 percent. Despite this decline, the rate earned on farm real estate investments in 1948 was still nearly twice the interest rate on farm mortgages, and substantially higher than could have been earned on alternative investments.

The outlook for land values depends primarily on trends in prices of farm products, and it appears likely that land values will continue to show moderate declines during the next 12 months. Price supports are likely to become of increasing importance in this respect. The level of agricultural price supports and the type of production controls which may be used will have a direct bearing on future trends in land values in different areas.

Interest, Taxes, and Insurance

Interest payments - Interest payments on total farm debt during 1949 are expected to be about 7 percent higher than for 1948. On non-real-estate farm debt during 1949 interest payments appear to be averaging about 10 percent more than in 1948 and over 70 percent greater than in 1945, the last year of war. Although a small increase in interest rates from some lenders may have occurred during the past year or two it is not an important factor in the higher interest charges. The rate of the postwar rise of non-real-estate debt appears to have slowed up during 1949. Interest payments probably will increase further in 1950 but the increase will be smaller than during the past 3 years.

In 1949 farmers mortgage interest payments probably will be about 5 percent more than they paid in 1948. This rise in interest payments is due almost entirely to the increase in mortgage debt as the average interest rate is expected to change little if any. As a consequence of this increase in farm mortgage interest payments, the total interest paid on mortgage debt in 1949 will be about 11 percent higher than it was in 1946 when the mortgage debt was at a 33-year low. While there was an apparent strengthening of interest rates on new mortgage loans in the latter part of 1948 and early 1949, this tendency has again weakened along with a general easing of the money market. There is also a tendency for the proportion of the farm-mortgage debt held by the lower rate lenders to increase at a somewhat greater rate than in the years just past.

Taxes - Taxes levied on farm property in 1948 and payable late in 1948 or early in 1949 averaged about 8 percent higher in 1948 than in the previous year. This is the fifth consecutive year in which the average for the country as a whole has risen. Average taxes per acre for the United States increased from \$0.53 in 1947 to \$0.57 in 1948; the index (1909-13=100) advanced from 254 to 275. This rate of increase, however, is not as great as it was from 1946 to 1947 when the index rose 15 percent. The index series, which goes back to 1890, is now nearing the all-time high of 281 that was reached in 1929.

Taxes per \$100 of real estate value for the United States increased from \$0.96 in 1947 to \$1.00 in 1948. This is only the second rise in the

tax-value ratio to appear in a decade. From 1939 to 1944, taxes per \$100 of value fell each year chiefly because the value of farm real estate advanced substantially. In 1945 and 1946, however, percentage increases in taxes matched increases in land values and in 1947 and 1948 exceeded them. The evidence suggests, even more than in the previous year, that land values are losing their upward momentum whereas taxes continue to rise. The largest rise shown was in the Pacific States, although significant increases occurred in individual States in other widely scattered regions.

The West South Central region was the only group of States that showed no change from 1947 to 1948 in the index of taxes per \$100 real estate value. This is in contrast to the Pacific division where the index rose from 342 to 396; a gain of 54 points in the same period.

For a few States, the index of taxes per acre showed a trend that differed from that of the preceding year. For Rhode Island, Tennessee, and Texas, the indexes fell 4, 7, and 14 points, respectively. In Rhode Island and Tennessee in 1947 general retail sales taxes were introduced into the revenue systems. In Delaware, Arkansas, Montana, and New Mexico, taxes per acre remained about the same. Taxes per acre increased again in Alabama, Louisiana, and Mississippi after several years of little or no change. The index of taxes per acre for Washington rose 77 points in contrast with a decrease shown for the previous year. This was the largest percentage increase among the 48 States.

Increased taxes in most States are the over-all results of a continuing demand for more and better public services, particularly schools and roads. In some States, assorted local factors have affected tax rates. In Illinois, for instance, increased assessed values (at the same or higher tax rates) have resulted recently from a new assessment--equalization program whereby the State equalizes annually all local assessments. In Tennessee, both increases and decreases in property taxes were reported by the various counties of the State. The increases were made either to implement the school building program, to increase teachers' salaries, or to build roads. But in other counties, sales-tax funds, which became available for the first time during this period, enabled public officials to proceed with their school-expansion programs without increasing property taxes. In some cases these funds made it possible for them to lower taxes.

Other taxes have direct or indirect effects upon farm costs but they are technically not included as farm costs. The Federal income tax payments of farmers, for instance, went down in amount for the first time in several years. Tax payments in 1949 on 1948 income were somewhat less, primarily because of changes in rates and exemptions. Meanwhile automotive taxes paid by farmers increased.

Insurance - Insurance premiums paid by farmers probably will be higher in 1949 than in 1948, primarily because of further increases in the amounts of fire and windstorm insurance carried to cover higher property replacement costs. While fire insurance rates have not changed appreciably in recent years, some companies have had to increase their current windstorm rates as a step in replenishing reserves which were reduced by heavy windstorm losses paid in 1947 and 1948.

Farm fire losses probably will be no higher in 1949 than in 1948, and may be down slightly. Indications are that windstorm and crop-hail losses will be less this year than in the two previous years.

Farmers took somewhat less crop-hail insurance this year than last, and premiums paid will be correspondingly less. The volume of crop losses from hail damage are approximately the same this year as last. The lower participation is attributed to the poor crop prospects in some parts of the country during the hail season. There was widespread damage in late spring in areas including Texas, Oklahoma, and Kansas. The 3 State hail funds wrote about 10 percent less insurance this year than last, but their premium collections, on the whole, probably will not equal insured losses.

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The following example illustrates the effect of varying rates of application of phosphate fertilizer in the year in which applied and also in each of 5 subsequent years. It also shows the residual effect of these different rates of application.

Yields per acre in a six year irrigated rotation with varying levels of phosphate fertilizer available to the crops through applications made in the first year 1/

Units of fertilizer available : <u>2/</u>	1st year : (tons)	2nd year : (tons)	3rd year : (tons)	4th year : (cwt.)	5th year : (cwt.)	6th year : (bu.)
1	2.15	2.99	2.67	255	195	57.2
2	3.16	4.91	4.23	275	240	72.0
3	3.66	6.11	5.21	<u>3/</u> 279	250	75.8
4	3.91	6.86	5.81	279	<u>3/</u> 252	76.7

1/ This table represents a preliminary analysis of some unpublished yield data obtained under Western irrigation conditions. It is illustrative only and is applicable only to conditions similar to those under which the data were obtained.

2/ One unit in this example is 36 pounds of effective plant nutrients ($P_2 O_5$). This would represent 180 pounds of superphosphate (20% $P_2 O_5$); or 75 pounds of triple superphosphate, (48% $P_2 O_5$).

3/ No gain was obtained from more than 3 units in the 4th year, while it is not until the 5th year that the effect of the rate represented by 4 units became negligible, as measured in terms of potato yields.

Each column reading downward shows the effect on yields that year of different quantities of phosphate made available to the crop as a result of applications in the first year. To determine the most profitable quantity of fertilizer to apply, it is necessary to examine the increase in yield that is associated with each additional unit made available. These yield increments are shown in the following table.

Yield increments each year in a six year irrigated rotation with varying levels of phosphate made available to the crops through applications made in the first year

Additional units of Fertilizer :	1st year : (tons)	2nd year : (tons)	3rd year : (tons)	4th year : (cwt.)	5th year : (cwt.)	6th year : (bu.)
2 over 1	1.01	1.52	1.56	20	45	14.8
3 over 2	0.50	1.20	0.98	4	10	3.8
4 over 3	0.25	0.75	0.60	1/ 0	2	0.9

1/ Increment would be 0.8 cwt. if decimals were carried. It should be kept in mind also that different seasonal conditions in the years influence yields and yield increments. No effort has been made to eliminate the effect of such influences.

It is the value of these increments, less the cost of (1) a unit of fertilizer, (2) the cost of applying it, and (3) the cost of handling the additional yield, that determines the most profitable levels at which to maintain the plant nutrients available to the crop. For example, using the final or fourth increment shown for the first year, if (1) a unit of superphosphate (180 pounds) costs \$2.25, (2) the cost of applying it is \$0.50 per acre, and (3) the cost of handling an additional quarter ton of hay is \$0.40, the total additional cost of the 4th unit of fertilizer would be \$3.15. If the net price of hay to the farmer were only \$12.60 per ton, he would break even (\$3.15 ÷ 0.25 ton additional yield equals \$12.60).

These figures approximate current fertilizer costs, but hay prices in most areas are much higher than \$12.60 per ton. Under current conditions there would be a substantial gain even in the first year from making available the equivalent of 720 pounds of superphosphate. If there were already available in the soil, phosphate nutrients equivalent to that supplied by one unit (180 pounds in this example), it would be necessary to add only the third unit, or a total of 540 pounds, to obtain the quarter ton increase in hay yield.

This point illustrates the importance of a better knowledge of yield response to fertilizers as influenced by the nutrient status of soils when determining what rate of application will be most profitable.

If the analysis contained in the previous paragraph is applied to the second and third years of the rotation, it will be found that the gains from the 4th unit of fertilizer made available through the heavier application are higher than they were in the first year when the fertilizer was applied. This is because of the residual effects. The greatest gains from all rates made available in the first year are obtained in the second year. But even in the third year the gains at all nutrient levels are greater than in the year when applications were made. As alfalfa was left for only three years the economic gains due to residual effects throughout the rotation can be appraised only through estimating future prices and values of the yield increments for the different crops, and the cost of handling the additional yields expected at different rates of application. It is clear that additional rates of application would not pay in terms of the residual

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effect on the yields of potatoes and wheat in the 4th, 5th, and 6th years. Moreover, if potatoes are considered alone, it would not pay to bring the available phosphate nutrients higher than is represented by application of the 3rd unit in the first year. But if a farmer is following a definite rotation, the rate of application should be determined by returns from the rotation. In the case of the alfalfa under the conditions of the illustration shown, it is probable that a 5th unit would be profitable under favorable price relationships.

